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Cost of Capital Study

January 1, 2015

Staff Recommendation

Industry: Telecom Utility			SIC: 4810
Equity:			**Reference**
Risk Adjusted Models			
	CAPM	9.65%	Page 5
Dividend Growth Models			
	DGM or DCF Model (Dividend Growth)	7.50%	Page 7
	DGM or DCF Model (Earnings Growth)	16.00%	Page 7
	DGM or DCF Model (b * ROE = Growth)	7.50%	Page 7
Esimated Cost of Equity Capital		**12.50%**	
Debt:			
Estimated Cost of Debt Capital		**7.00%**	Page 3

Cost of Capital Summary

Capital Component	Market Capital Structure	Cost of Capital	Before-Tax Weighted Average Cost of Capital
Debt	50.00%	7.00%	3.50%
Equity	50.00%	12.50%	6.25%
TOTAL	**100.00%**		**9.75%**
		Rounded	**9.75%**

Cost of Capital Study

January 1, 2015

Staff Recommendation

Industry: Telecom Utility		SIC: 4810
Equity: Direct Rate		**Reference**
Esimated Cost of Equity Capital	**5.00%**	Page 8
Debt: Estimated Cost of Debt Capital	**6.63%**	Page 9

Cost of Capital Summary

Capital Componer	Market Capital Structure	Cost of Capital	Before-Tax Weighted Average Cost of Capital
Debt	50.00%	6.63%	3.32%
Equity	50.00%	5.00%	2.50%
TOTAL	**100.00%**		**5.82%**
		Rounded	**5.75%**

Cost of Capital Study
January 1, 2015
Analysis of the Market Capital Structure
Analysis of Debt Capital

Industry: Telecom Utility		Ratings	
Company	Ticker	Moody's	S&P
BCE Inc.	BCE	Baa2	BBB+
BT Group ADR	BT	Baa2	BBB
CenturyLink Inc.	CTL	Ba1	BB
Cincinnati Bell	CBB	B2	B
Consol. Communic.	CNSL	NR	B+
Deutsche Telekom ADR	DTEGY	Baa1	BBB+
Frontier Communic.	FTR	Ba3	BB-
Telefonica SA ADR	TEF	Baa2	BBB
Windstream Corp.	WIN	Ba3	BB-
Overall Average Debt Rating		**Ba**	**BB**

NR = Not Rated

Mergent Bond Record, Jan 2015, Page 213					
Corporate	**Aaa**	**Aa**	**A**	**Baa**	**Ba***
October	3.92%	3.99%	4.13%	4.69%	
November	3.92%	4.04%	4.18%	4.79%	
December	3.79%	3.89%	4.05%	4.74%	
Average	**3.88%**	**3.97%**	**4.12%**	**4.74%**	**7.00%**
Public Utilities	**Aaa**	**Aa**	**A**	**Baa**	
October		3.98%	4.06%	4.67%	
November		4.03%	4.09%	4.75%	
December		3.90%	3.95%	4.70%	
Average		**3.97%**	**4.03%**	**4.71%**	
Industrials	**Aaa**	**Aa**	**A**	**Baa**	
October	3.92%	4.00%	4.20%	4.70%	
November	3.92%	4.04%	4.27%	4.82%	
December	3.79%	3.89%	4.15%	4.77%	
Average	**3.88%**	**3.98%**	**4.21%**	**4.76%**	

Debt Yield Rate Estimate:	**7.00%**

Rating Sources:
Mergent Bond Record, January 2015;
www.standardandpoors.com;
www.moodys.com
* Estimated, based on recent issuances

Ratings Dispersion & Averages				
Agency		Number of Companies		
S&P				
AAA	1			
AA	2			
A	3			
BBB	4	4	16	
BB	5	3	15	
B	6	2	12	
CCC	7			
C	9			
D	10			
Total:		9	43	
Average Rating:				4.78
Moody's				
Aaa	1			
Aa	2			
A	3			
Baa	4	4	16	
Ba	5	3	15	
B	6	1	6	
Caa	7			
Ca	8			
C	9			
Total:		8	37	
Average Rating:				4.63

Cost of Capital Study
January 1, 2015
Analysis of the Market Capital Structure

Industry: Telecom Utility									SIC: 4810
Company Name	**Stock Symbol**	**Debt ($ mil)**	**Debt %**	**Stock Price**	**Shares Outstanding**	**Equity ($ mil)**	**Equity %**	**Total Capital ($ mil)**	
BCE Inc.	BCE	15,277.2	31.41%	42.99	775.9	33,354	68.59%	48,631.6	
BT Group ADR	BT	13,182.1	20.99%	62.64	792	49,610	79.01%	62,792.4	
CenturyLink Inc.	CTL	20,181.0	49.43%	35.38	583.6	20,645	50.57%	40,826.1	
Cincinnati Bell	CBB	1,771.0	70.24%	3.58	209.3	750	29.76%	2,521.2	
Consol. Communic.	CNSL	1,356.8	55.18%	21.87	50.4	1,102	44.82%	2,459.0	
Deutsche Telekom ADR	DTEGY	60,229.6	45.95%	15.92	4451.5	70,849	54.05%	131,078.5	
Frontier Communic.	FTR	7,873.7	58.08%	5.69	999.5	5,683	41.92%	13,556.2	
Telefonica SA ADR	TEF	70,617.4	50.22%	15.48	4521.6	69,988	49.78%	140,605.5	
Windstream Corp.	WIN	8,622.2	61.98%	8.87	596.2	5,290	38.02%	13,912.2	
Mean:			**49.28%**			**28,586**	**50.72%**	**50,709**	
Median:			**50.22%**				**49.78%**		
Market Capital Structure Estimate:		**Debt:**	**50.00%**			**Equity:**	**50.00%**		

Stock Price = 2014 Average Closing Price

Data Source: Value Line Investment Survey

Cost of Capital Study
January 1, 2015
Capital Asset Pricing Model (CAPM)

CAPM ==> $K_e = R_f + (\beta * ERP)$

Industry: Telecom Utility	**SIC: 4810**
Risk-Free Rate (R_f)	3.00%
Beta (β)	0.95
Equity Risk Premium (ERP): (R_m - R_f)	7.00%
Adjusted Equity Risk Premium: (β * ERP)	6.65%
Cost of Equity Capital - CAPM	**9.65%**

Ibbotson SBBI 2015 Market Report	
Long-Term Government Bonds - Income Return[1]	6.10%
Intermediate Term US Treasury Coupon Note Yield (5-Year)[1]	5.40%
Short-Term US Treasury Bill Yield (30-Day)[1]	3.50%
Long-Term Horizon Expected Equity Risk Premium[2]	7.00%
(Large Compay Stock Total Return - Long-Term US Government Bond Income)	

[1] Table 7: Basic Series, Summary Statistics of Annual Total Returns, Arithmetic Mean, p. 13
[2] Table 10: Long-Horizon Expected Equity Risk Premium (historical), p. 16

Federal Interest Rates - IRS.gov, January 2015 Weighted Average Rates	
Long Term Treasury (30 year)[1]	3.35%
Composite Corporate Bonds[2]	4.48%

[1] http://www.irs.gov/Retirement-Plans/Weighted-Average-Interest-Rate-Table
[2] http://www.irs.gov/Retirement-Plans/Composite-Corporate-Bond-Rate-Table

The ValueLine Investment Survey, Selected Yields, Page 4445, January 9, 2015	
U.S. Treasury Securities:	
5-year	1.68%
10-year	2.19%
30-year	2.76%
30-year Zero	2.86%

Federal Reserve Statistical Release (http://www.federalreserve.gov/Releases/H15/20150105/) 1//2015	
Treasury constant Maturities:	
5-year	1.67%
10-year	2.18%
20-year	2.47%
30-year	2.75%

Risk-Free Rate of Return R_f Estimate:	**3.00%**

Cost of Capital Study

January 1, 2015

Beta (β) Analysis

Industry: Telecom Utility		**SIC: 4810**
Company Name	**Stock Symbol**	**Beta "β"**
BCE Inc.	BCE	0.70
BT Group ADR	BT	1.10
CenturyLink Inc.	CTL	0.80
Cincinnati Bell	CBB	1.15
Consol. Communic.	CNSL	0.75
Deutsche Telekom ADR	DTEGY	1.00
Frontier Communic.	FTR	0.95
Telefonica SA ADR	TEF	1.15
Windstream Corp.	WIN	0.95
Mean:		0.95
Median:		0.95
Beta (β) Estimate:		**0.95**

NMF = Not Meaningful

Data Source: Value Line Investment Survey

Cost of Capital Study

January 1, 2015

Dividend Growth Model (DGM or DCF)

DGM or DCF Model ==> $K_e = \frac{D_1}{P_0} + g$

where

K_e =	Cost of Equity
D_1 =	Expected Dividends
P_0 =	Current Price
g =	Sustainable Growth

Industry: Telecom Utility													SIC: 4810
Company Name	**Stock Symbol**	**Stock Price P_0**	**Expected Dividend D_1**	**Dividend Yield (D_1 / P_0)**	**Dividend Growth g**	**Earnings Growth g**	**b**	**ROE**	**g=(b * ROE)**	**(Dividends) K_e**	**(Earnings) K_e**		**g=(b * ROE) K_e**
BCE Inc.	BCE	42.99	2.04	4.75%	3.00%	6.50%	19.51%	17.58%	3.43%	7.75%	11.25%		8.18%
BT Group ADR	BT	62.64	1.95	3.11%	12.00%	6.50%	64.86%	0.00%	0.00%	15.11%	9.61%		3.11%
CenturyLink Inc.	CTL	35.38	2.16	6.11%	-3.00%	15.00%	-31.68%	5.74%	-1.82%	3.11%	21.11%		4.29%
Cincinnati Bell	CBB	3.58	-	0.00%	0.00%	0.00%	276.27%	2.09%	5.77%	NMF	NMF		5.77%
Consol. Communic.	CNSL	21.87	1.55	7.09%	0.00%	25.50%	100.00%	4.67%	4.67%	7.09%	32.59%		11.76%
Deutsche Telekom ADR	DTEGY	15.92	0.67	4.21%	-0.50%	7.00%	-10.49%	6.33%	-0.66%	3.71%	11.21%		3.55%
Frontier Communic.	FTR	5.69	0.42	7.39%	-3.50%	20.00%	-67.38%	5.88%	-3.96%	3.89%	27.39%		3.43%
Telefonica SA ADR	TEF	15.48	0.86	5.56%	2.00%	-1.00%	59.18%	25.23%	14.93%	7.56%	4.56%		20.49%
Windstream Corp.	WIN	8.87	1.00	11.27%	0.00%	-0.50%	-152.60%	27.97%	-42.68%	11.27%	10.77%		NMF
Mean:				5.50%	1.11%	8.78%	28.63%	10.61%	-2.26%	**7.43%**	**16.06%**		**7.57%**
Median:				5.56%	0.00%	6.50%	19.51%	5.88%	0.00%	**7.32%**	**11.23%**		**5.03%**
Cost of Equity Capital - DCF K_e Estimate:										**7.50%**	**16.00%**		**7.50%**

NMF = Not Meaningful

b = (1 - payout ratio) = Retention Ratio

ROE = Return on Book Equity

Stock Price = 2014 Average Closing Price

Data Source: Value Line Investment Survey

Support for Market Multiples
Telecom Utility
2015 Assessment Year

Industry Overall				
Company Name	**Ticker**	**$Stock$ Average**	**Earnings**	**P/E Multiple**
BCE Inc.	BCE	42.99	2.38	18.06
BT Group ADR	BT	62.64	4.46	14.04
CenturyLink Inc.	CTL	35.38	1.64	21.57
Cincinnati Bell	CBB	3.58	-0.08	NMF
Consol. Communic.	CNSL	21.87	0.35	62.48
Deutsche Telekom ADR	DTEGY	15.92	0.63	25.26
Frontier Communic.	FTR	5.69	0.24	23.69
Telefonica SA ADR	TEF	15.48	1.63	9.50
Windstream Corp.	WIN	8.87	0.38	23.35
Mean:				**24.74**
Median:				**22.46**
Weighted Mean:				**18.26**
P/E Estimate:				**20.0**
Equity Rate:				**5.00%**

NMF = Not Meaningful
Stock Price = 2014 Average Closing Price
Note: Units per share comparisons

Data Source: ValueLine Investment Survey

Cost of Capital Study
January 1, 2015
Direct Debt Rate Calculation

Industry: Telecom Utility		
Direct Capitalization Debt Rate		
Interest Expense		$ 12,610
Total Value of Debt (TVD)		$ 190,059
Current Yield = Interest Expense/TVD		**6.63%**

$ (millions)

Data Source: ValueLine Investment Survey